pletely passed away into the mythology of surgery, that if it were not that one of my own wards, at this moment, contains two most excellent instances proving its utter nonsense, I would not at all refer to it. The haversack of one man was struck by a round shot on the 8th September, and though his back was slightly discolored, he was not knocked down; and the other suffered a trivial abrasion of the thigh by a like cause. I had lately two under my notice—a sergeant who was struck on the chin by a 9 lb. ball, and though it fractured his jaw severely, in no way affected his brain; and another soldier had a piece of flesh, about the size of the fist, cleanly nipped out of his hip in the same way."

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16. *Hemorrhage following Gunshot Wounds.* By G. H. B. Macleod.—Hemorrhage following gunshot wounds is not now so dreaded as it used to be, because it is known to be by no means so frequent in occurrence as it was formerly believed to be. I have heard surgeons declare that tourniquets might have been left at home, so far as any use they were of at the battles of the Alma and Inkerman, but I suspect, though cases did not often require them when seen by the medical man, that hemorrhage is in reality the chief immediate cause of death in the case of the majority of men killed in the field. It would be a dangerous experiment to make, but withal a very interesting one, to go over a field of battle immediately after a fight, and record the apparent causes of death in each case.

The returns fail to inform us of the numbers of cases in which secondary hemorrhage succeeded gunshot wounds in the course of this war, and though I have no figures to which I might refer in corroboration of the statement, I am inclined to think that the proportion is higher than that set down by Mr. Guthrie. The period of its occurrence has appeared to range, on an average, between the fifth and the twenty-fifth day, without drawing any minute distinction, as is done by Dr. John Thomson, between hemorrhage due to sloughing, ulceration, or simply excited arterial action at different stages of the process of cure. The fifteenth day has, curiously enough, been that on which it has taken place in the vast majority of the cases of which I have retained notes. One instance, the particulars of which I failed to learn, was said to have occurred as late as the seventh week, when the wound—a gunshot wound of the thigh—was nearly cicatrized. Hemorrhage occurring early has been almost universally treated on the principle laid down by Bell, and so well supported and elucidated by Guthrie, of tying both ends of the wounded vessel; but when the limb is much swollen, the parts infiltrated matted together and disorganized, it is all very well to say the same principles must be carried out notwithstanding the additional risk that the coats of the vessel may be diseased, but any one who has tried it a few times will know that to do so is no easy task. With a vessel like the posterior tibial, which has repeatedly bled and infiltrated the tissues of a large muscular calf, changing their appearance and matting them together, and with a large irregular wound, into which the blood from the vessel does not seem to be poured in a collected form, but to well out from a large sloughing surface, so as to afford no guide to its exact position, the undertaking is one of the most difficult that can be imagined. The rules and precepts laid down in books about passing probes from the surface towards the seat of the bleeding, the appearance assumed by the vessel, and the dissecting-room directions to find it, are all utterly useless in actual practice; and the knowledge of them is often more a hindrance than an assistance. Watchful eyes and careful cutting, are the only reliable guides.

I believe that pressure so carefully applied over a long tract of the main vessel above, as will diminish, without arresting, the stream passing through it, will, in many cases, be sufficient to allow such coagulation to take place in the open mouths of the vessels as will prevent any future annoyance—that is always supposing a very large extent of an artery be not ripped open, as it were, and as I have seen it, by a rifle ball. The French do not, seemingly, act so unreservedly on the principle of putting a ligature on both ends of a bleeding vessel, as we do. They perform Anel's operation in not a few cases. The interesting and instructive nature of the following case is evident: A Russian boy, wounded at Inkerman, was received into the French hospital at Pera. He had sustained a compound fracture of the leg from gunshot. On the fifteenth day after injury, profuse hemorrhage took place from both openings. Pressure failed to arrest it. The popliteal was tied the same day according to the method of deligation recommended by M. Jobert, viz., on the inner side of the limb, between the vastus and hamstring muscles. The foot remained very cold for four days, and then violent reaction set in, and on the eighth day from the ligature of the main vessel hemorrhage recurred both from the original wound and the incision of ligature. Pressure was tried in vain. The superficial femoral was then ligatured on the tenth day from the deligation of the popliteal. Four days afterwards the bleeding returned from the wound, and pressure then seemed to check it. The ligature separated from the femoral on the twelfth day after its being tied, and the third day after, *i. e.*, the twenty-fifth day from the first occurrence of hemorrhage bleeding again set in from the wound, the limb was amputated in the thigh, and the unfortunate patient ultimately recovered. Would Mr. Guthrie not have saved this man's limb and the surgeons much trouble? It was a matter of common conversation in the hospitals at Constantinople, that when the weather was close and sultry, with little wind, there was certain to be a large number of cases of secondary hemorrhage.

A soldier, resting his right hand on his musket, was struck by a ball on the web between the thumb and forefinger. The wound seemed trivial, but the whole hand swelled exceedingly. On the fourteenth day arterial hemorrhage occurred, and pressure was applied. The bleeding repeatedly recurred, and still pressure was persevered in. Finally the radial, and then the ulnar, was ligatured before the hemorrhage was commanded. An early search in the wound, and a thread appled to the orifices of the vessel, would have saved much annoyance and risk. The following occurred under my own notice:—

M'Garthland, a soldier of the 38th regiment, an unhealthy man, who still suffered from the effects of scurvy, which had been followed by fever, was shot through the left leg from behind, and externally forwards and inwards, on the 18th of June. The fibula was broken, and the edge of the tibia was injured. He walked to the rear without assistance. On admission the limb was greatly swollen. This swelling very much diminished in a few days. On the fifth day, arterial bleeding, to a limited extent, took place from both openings. Recalling a case put on record by Mr. Butcher, of Dublin, the wound of the post-tibial, I determined on trying the effects of well-applied pressure along the course of the popliteal and in the wound, and employed cold, while the limb was raised and fixed on a splint. The object of the pressure on the main vessel was to diminish, not arrest, the flow of blood through it. On the eighth day there was again some oozing. Pus had accumulated among the muscles of the calf (one great objection to using pressure on the orifices of gunshot wounds), and required incision for its evacuation. On the ninth day a pulsating tumour was observed on the external aspect of the leg, and next day the bleeding returned from both wounds.

I wished then to cut down and tie the vessel in the wound, but a consultation decided on waiting a little longer, in the hope that the bleeding might not return. On the night of the eleventh day most profuse hemorrhage recurred. The attendant, though strictly enjoined, failed to tighten the tourniquet, but the necessary steps to arrest the bleeding were taken by the officer on duty. Next morning, when I first heard of the occurrence, I found the patient blanched, cold, and nearly pulseless. A consultation decided that the state of the parts made the securing of the vessel in the wound very problematical, and that as the limb would not recover if the main artery was taken up, amputation must be performed so soon as he had sufficiently rallied. When reaction had fairly taken place, I amputated the limb. The removed parts were much engorged, sloughed, and disorganized. The anterior tibial was found to have been opened for about an inch shortly after its origin, and on it was formed the aneurism, which had a communication with both orifices of the wound. The artery should have been tied in the wound on the occurrence of the second bleeding. I say the second bleeding, as it very often happens that even when hemorrhage has taken place, to a considerable extent, and evidently from a vessel of large calibre, it never recurs. Many most striking instances of this have come under my notice. But though more than even this is true, and that frequently blood thrown out repeatedly is spontaneously arrested, still the great preponderance of cases in which it recurs in dangerous repetitions and quantities, as in the above instance, should cause us, I believe, to interfere on its second appearance, if it be in any quantity more particularly, and that we should not delay, so as to run the risk of such a return as will cause exhaustion. Not to interfere unless the vessel is bleeding, must not always be understood too literally, or we will often be prevented from performing a necessary operation till our patient is beyond our help. The hemorrhage recurs over and over again, and the surgeon, though as near as is practicable, arrives only in time to see the bed drenched, and the patient and attendant intensely alarmed. There is at the moment no bleeding, and he vainly hopes there will be no return; and so on goes the game between ebbing life and approaching death, the loss not great at each time, but mighty in its sum, till all assistance is useless.

The use of acetate of lead, or gallic acid, though often trusted to in these hemorrhages, are surgical farces—mesmeric passes along the vessels would be of infinitely more service.—*Edinburgh Medical Journal*, May, 1856.

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17. *Escape of Great Vessels by their Elasticity, from Balls.* By G. H. B. Macleod.—There is no circumstance in gunshot wounds which is more striking than the wonderful way in which the great vessels, by their elasticity, escape from the ball in its transit. Thus bullets innocuously traversed parts where one would suppose a pin's head could not be placed, without wounding a vessel. True, the fact that such cases remain to be seen, results from the vessel not having been opened, and we do not know in how many cases the result was not so fortunate, but still, viewed merely as happy escapes, they are curious and interesting. In the course of the femoral vessels, this phenomenon is particularly common. Through the axilla, through the neck, out and in behind the angles of the jaw, between the bones of the forearm and leg, balls of every size often take their passage without harm to the vessels. Take the following cases as examples: A soldier was wounded at Inkerman, by a ball which entered through the right cheek and escaped behind the angle of the left jaw, so tearing the parts that the great vessels were plainly visible in the wound. Three weeks after he was discharged without having had a bad symptom. A soldier of the Buffs was struck in June last, when in the trenches, by a rifle ball, in the nape of the neck. It passed forwards round the right side of the neck, up under the angle of the inferior maxilla, fractured the superior maxillary and malar bones, destroyed the eye, and, escaping, killed another man who was sitting beside him. This man made a recovery without a bad symptom.

A French soldier at the Alma was struck obliquely by a rifle ball, near, but external to the right nipple; the ball passed seemingly right through the vessels and nerves in the axilla, and escaped behind. His cure was rapid and uninterrupted. Endless numbers of similar cases may be seen in any military hospital.—*Ibid.*

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18. *The Warm Bath in the Treatment of Wounds, Especially those made in Amputation.*—M. Langenbeck, of Berlin, has published in the *Deutsche Klinik* for September 15th, 1855, an account of a process by which wounds, especially those made in amputation, can be constantly subjected to the influence of a warm bath. He first examines the modes of application of cold and warm water, and concludes that, in many cases, these are insufficient. He relates the advantages which he has obtained from the use of large warm baths after capital operation, such as disarticulation of the shoulder-joint, excision of the scapula, lithotomy, etc. These baths have been employed from half an hour to an hour once or twice daily, not being contraindicated by traumatic fever and inflammation of the edges of the wound; at a temperature of 97° Fahrenheit, they maintain warmth, diminish fever, heat, and the frequency of the pulse, calm pain, and keep the wound clear. Topical warm baths have often been